

ABSTRACT

A rotor blade system with reduced blade-vortex interaction noise includes a plurality of tube members embedded in proximity to a tip of each rotor blade. The inlets of the tube members are arrayed at the leading edge of the blade slightly above the chord plane, while the outlets are arrayed at the blade tip face. Such a design rapidly diffuses the vorticity contained within the concentrated tip vortex because of enhanced flow mixing in the inner core, which prevents the development of a laminar core region.